ABSTRACT OF THE DISCLOSURE

This invention provides a method and apparatus for spectral power monitoring by use of a polarization diversity scheme. In the present invention, a multi-wavelength optical signal is first decomposed into first and second polarization components, and the second polarization component is subsequently rotated by 90-degrees, prior to impinging onto a diffraction grating that provides a higher diffraction efficiency for the first polarization component. The diffraction grating separates the first and second polarization components by wavelength respectively into first and second sets of optical beams, impinging onto an array of optical power sensors. The inventive optical spectral power monitoring apparatus thus is able to minimize the insertion loss, while providing enhanced spectral resolution. Further, by modulating the first and second sets of optical beams prior to impinging onto the optical power sensor array, the present invention enables an optical power spectrum associated with each polarization component in the multi-wavelength optical signal to be separately determined.